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ESSAY | William J. Hirsh

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## Degrading Gracefully

WASHINGTON

"Tell me more about the survivability of submarines," said President Reagan to his science adviser, George Keyworth, after a meeting in 1981.

The reason for that pregnant question: In a world made safe only by the deterrent threat of swift and sure retaliation, the United States depends not so much on land-based or bomber-borne missiles, but on the 144 re-entry vehicles that can be launched by each of our Trident submarines. If the Russians could find a way to take those subs out, the central part of our deterrent would disappear.

"Submarines are quiet weapons in a noisy ocean," Dr. Keyworth recalls answering, but added then, as he adds now, a disquieting note: "But the way you extract small signals from a noisy environment is through 'signal processing.' Its speed is accelerating, and the day may come when data processing for sensors on satellites will be able to answer this question: Was a submarine in a given 10-mile diameter in the past hour?"

When that day comes, submarine survivability ends: the Russians would be able to knock out our main deterrent with nuclear depth charges.

Presidents get paid to prepare for the day that our best weapon becomes obsolete. Two years ago this week, Mr. Reagan slipped a paragraph in a speech to announce not a new weapon, but an approach to a whole new strategy: a defense that relied less on mutual nakedness than on the reality of a shield.

Nakedness worked in the past, when technology could do little to knock out a superpower's ability to retaliate. But in the present, our land-based retaliation, even with the MX added, is already vulnerable; and in the future, "signal processing" by computers could remove the threat from our submarines.

That is why the Jack Dempsey theory — "offense is the best defense" — suffered a knockout two years ago. Mutual Assured Destruction was destroyed by the march of scientific progress. Objections to research on "Star Wars" — or "Project A," as Dr. Keyworth would like to call it — are losing their relevance.

The real debate now going on in our defense establishment is between two groups of star-wars supporters: one sees the futuristic system of laser beams, pulses and mirrors as the newest tactical weapons in existing strategy, while the other insists on a complete new "accent-on-defense

### How to take the profit out of war

strategy, with the goal of making effective offense too expensive to achieve.

The Old Guard talks of "point defense," using tactical missiles to blast incoming warheads at those key sites where retaliatory missiles are based; the New Guard (as well as the Ogarkovites in Moscow) seek a global system to stop offensive missiles just as they slowly and noisily are boosted off the ground.

"Jay" Keyworth, an atomic physicist who was only 5 when the first mushroom cloud formed over the sands of New Mexico, counts himself among the global-shieldniks. He is an engaging fellow, as media-bashers go, padding in stocking feet around his surveillance-resistant corner of the Old Executive Office Building. (An unbuggable office is the new status symbol — if the Russians can overhear you, you're not worth listening to.) He zips to work down the George Washington Parkway in a chocolate-brown Porsche that his aides think must be "stealthed," to use the hot new Pentagon verb for the anti-radar system the Science Adviser calls "Project C."

"Point defense degrades catastrophically," he says, "if it can be saturated by the proliferation of enemy offense." Since those words won't lift off, he explains: "If you can shoot down 1,000 missiles, and the last one makes it, your point defense collapses.

"But if there are 1,400 Soviet missiles with our boost-phase laser system to meet them, and they multiply their missiles by 10, we can multiply the pulses sent against those missiles by 10 at infinitely less cost. More missiles are expensive, more pulses are cheap. If your failure rate increases only 1 or 2 percent, your boost-phase defense can be said to degrade gracefully."

Here is the startling prospect: if we can reach the point where a unit of defense is much cheaper than the corresponding unit of offense, we will take all the profit out of war. That, more than any spirit of good will or rationality, is the last best hope of mankind. □